Fig. 1

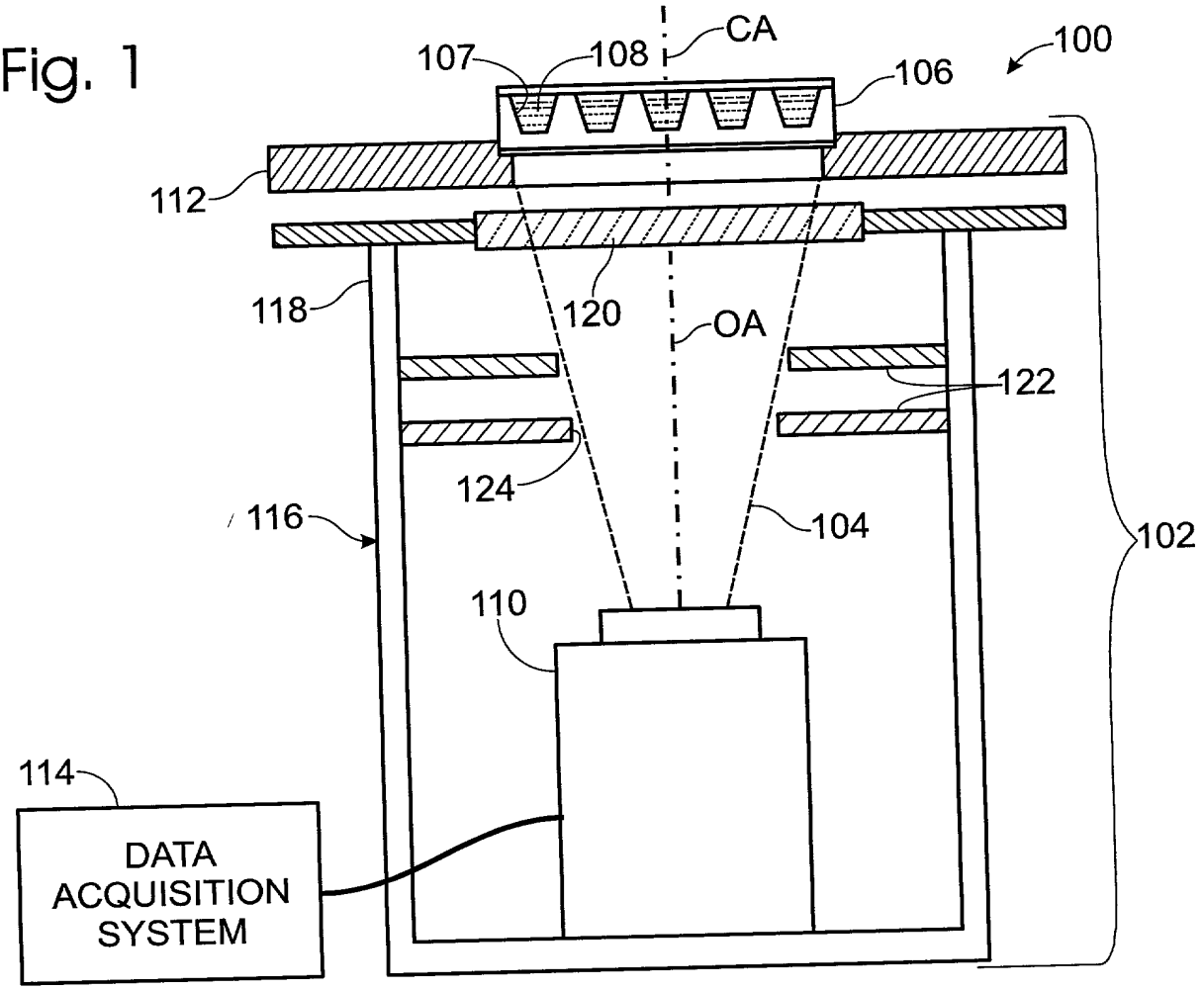

CA
107
108
106
100
112
118
120
OA
122
124
116
104
102
110
114
DATA ACQUISITION SYSTEM

Fig. 2

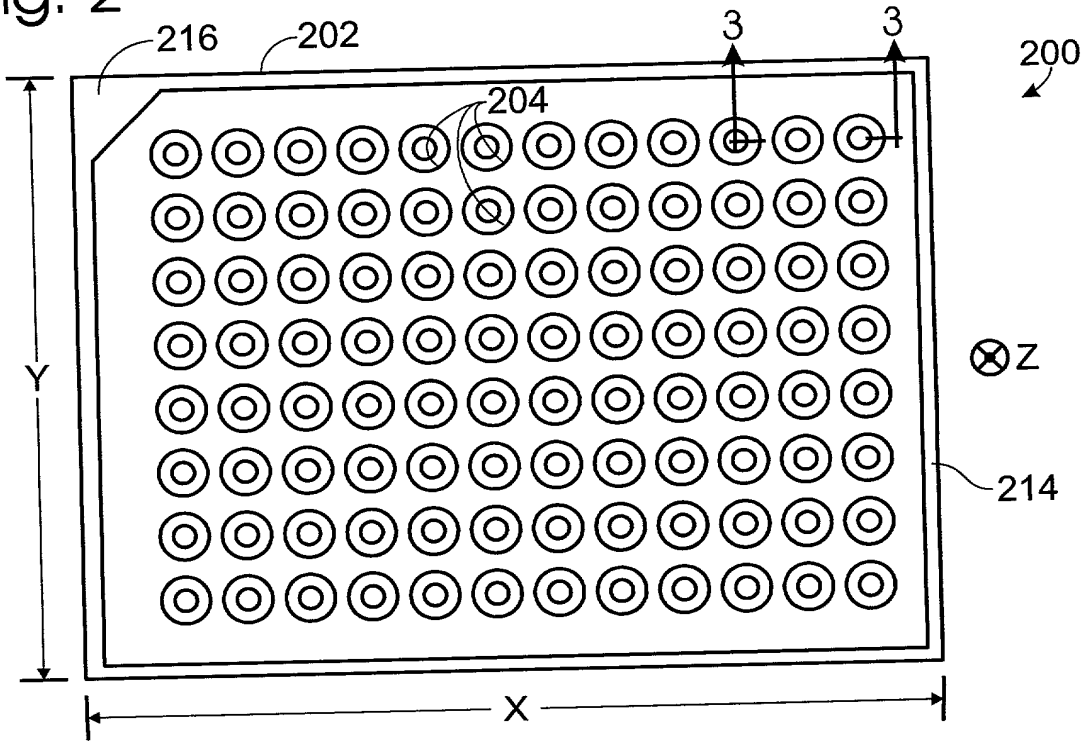

216
202
3
3
200
204
Y
Z
214
X

Fig. 3

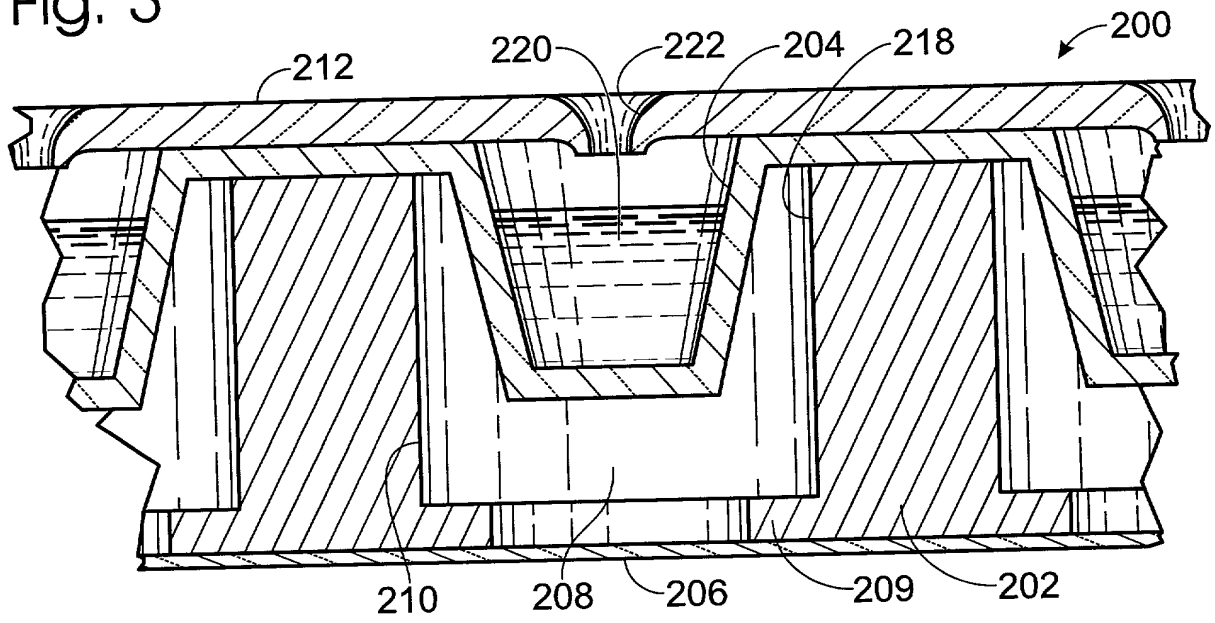

212
220
222
204
218
200
210
208
206
209
202

Fig. 4

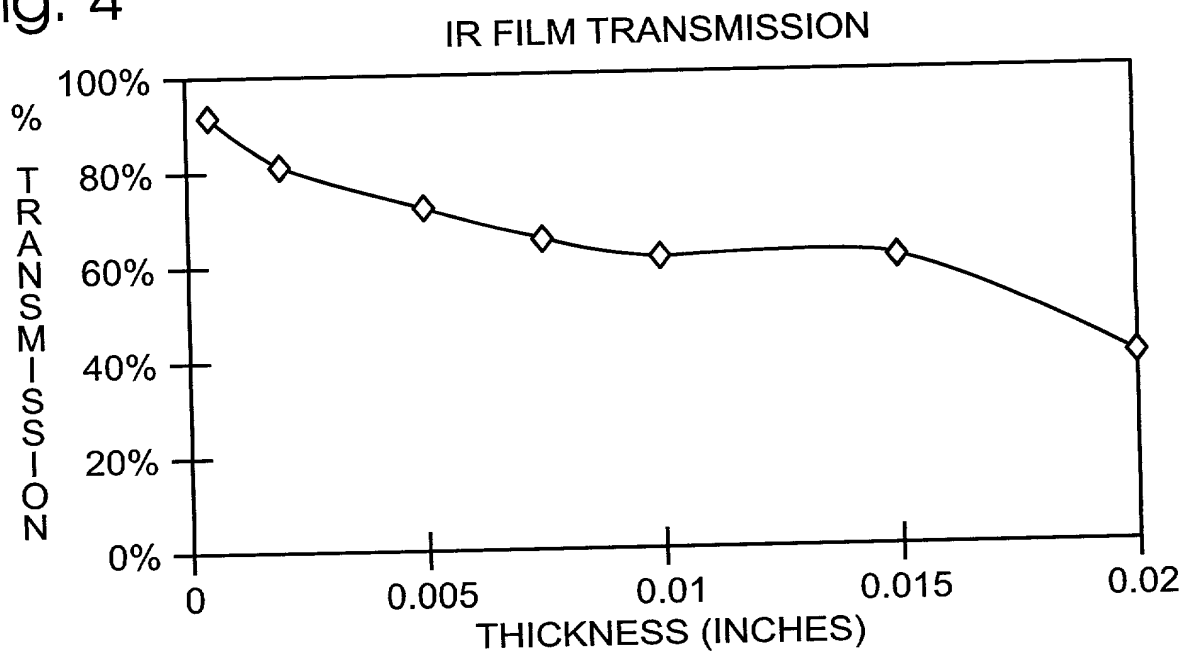
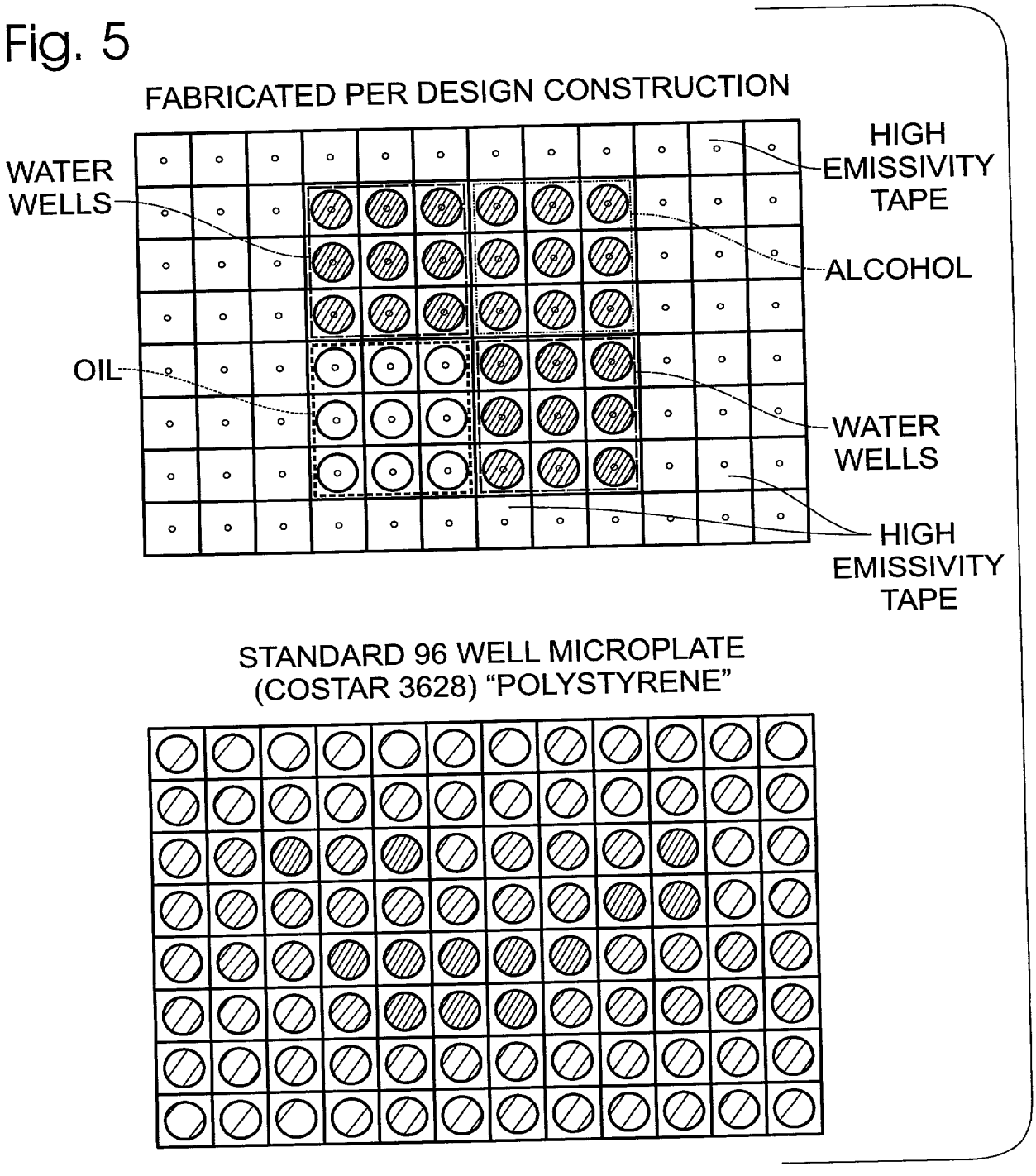

IR FILM TRANSMISSION
% TRANSMISSION
100%
80%
60%
40%
20%
0%
0
0.005
0.01
0.015
0.02
THICKNESS (INCHES)

Fig. 5


FABRICATED PER DESIGN CONSTRUCTION
WATER WELLS
OIL
HIGH EMISSIVITY TAPE
ALCOHOL
WATER WELLS
HIGH EMISSIVITY TAPE
STANDARD 96 WELL MICROPLATE
(COSTAR 3628) "POLYSTYRENE"

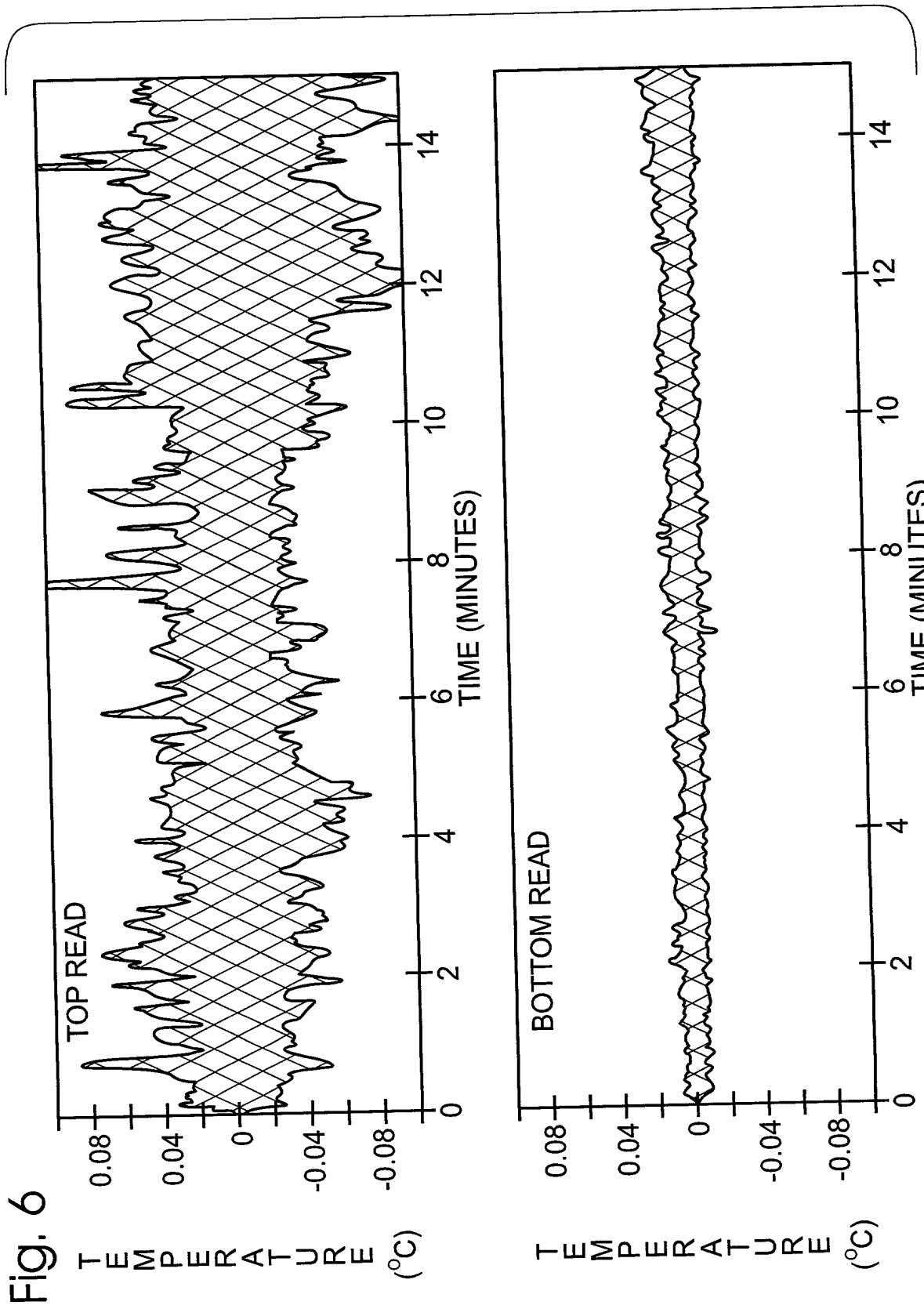

TOP READ
BOTTOM READ
TEMPERATURE (°C)
TIME (MINUTES)
0.08
0.04
0
-0.04
-0.08
0
2
4
6
8
10
12
14

Fig. 6

Fig. 7

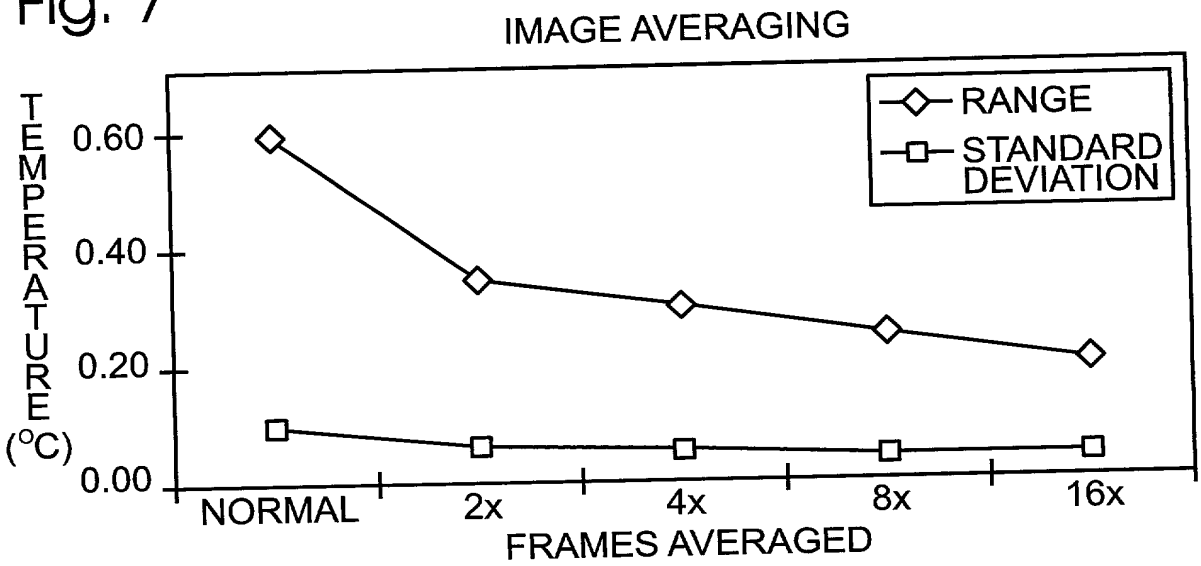


IMAGE AVERAGING
RANGE
STANDARD DEVIATION
TEMPERATURE (°C)
0.60
0.40
0.20
0.00
NORMAL
2x
4x
8x
16x
FRAMES AVERAGED

Fig. 8

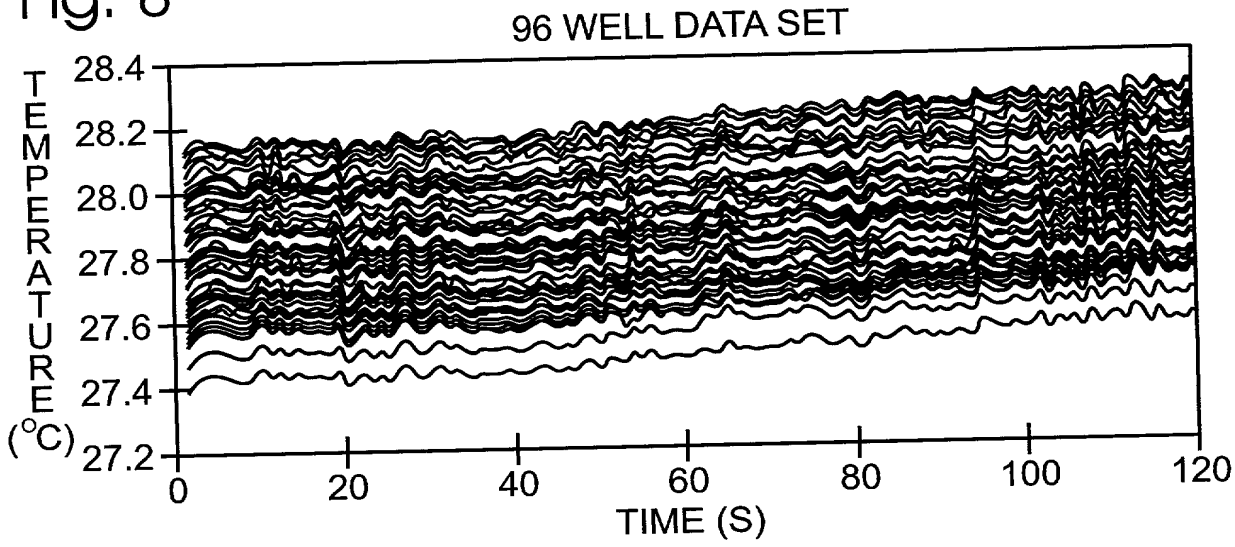

96 WELL DATA SET
TEMPERATURE (°C)
28.4
28.2
28.0
27.8
27.6
27.4
27.2
0
20
40
60
80
100
120
TIME (S)

Fig. 9

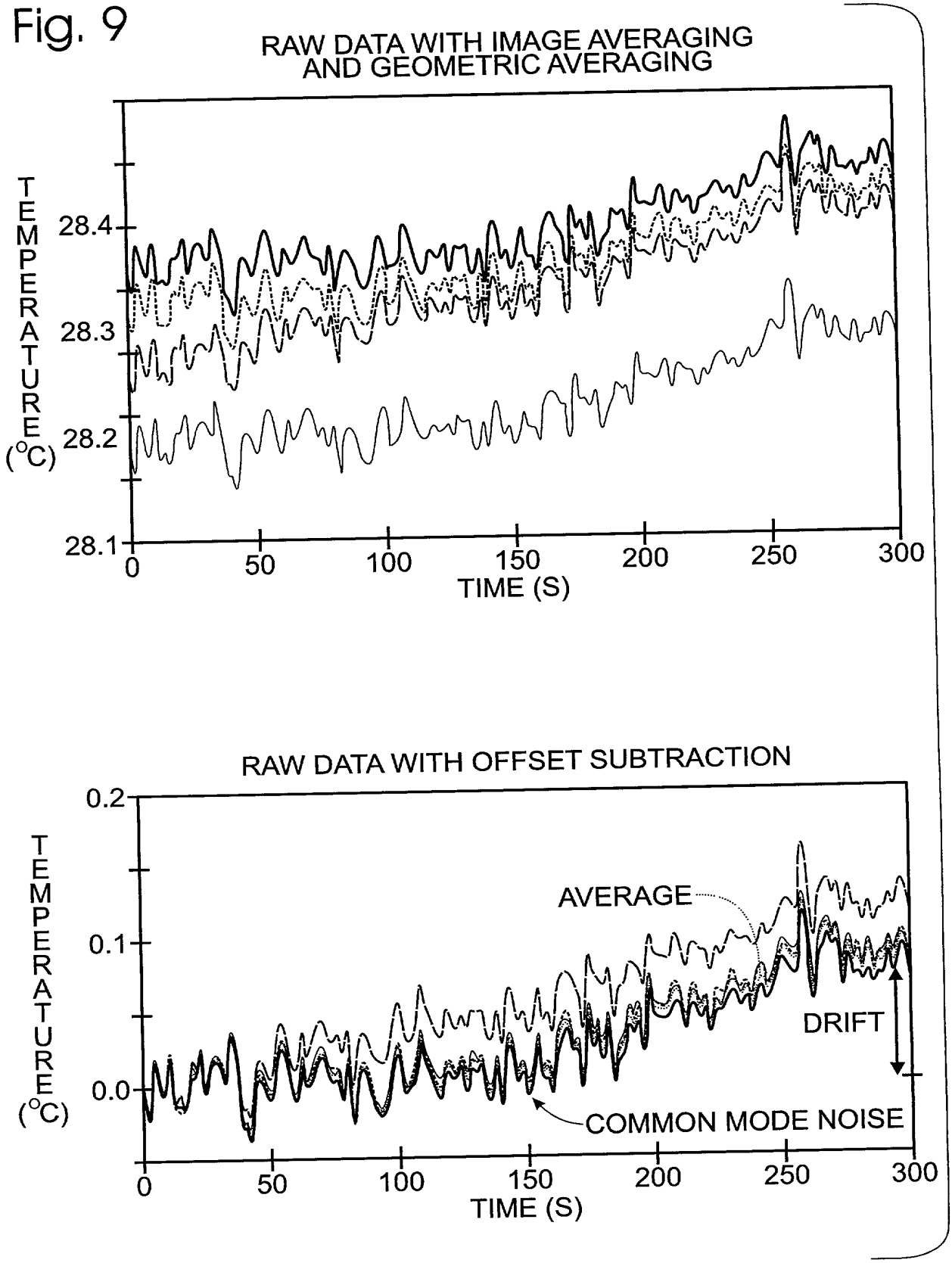

RAW DATA WITH IMAGE AVERAGING
AND GEOMETRIC AVERAGING
TEMPERATURE (°C)
28.4
28.3
28.2
28.1
0
50
100
150
200
250
300
TIME (S)
RAW DATA WITH OFFSET SUBTRACTION
TEMPERATURE (°C)
0.2
0.1
0.0
AVERAGE
DRIFT
COMMON MODE NOISE
0
50
100
150
200
250
300
TIME (S)

Fig. 10

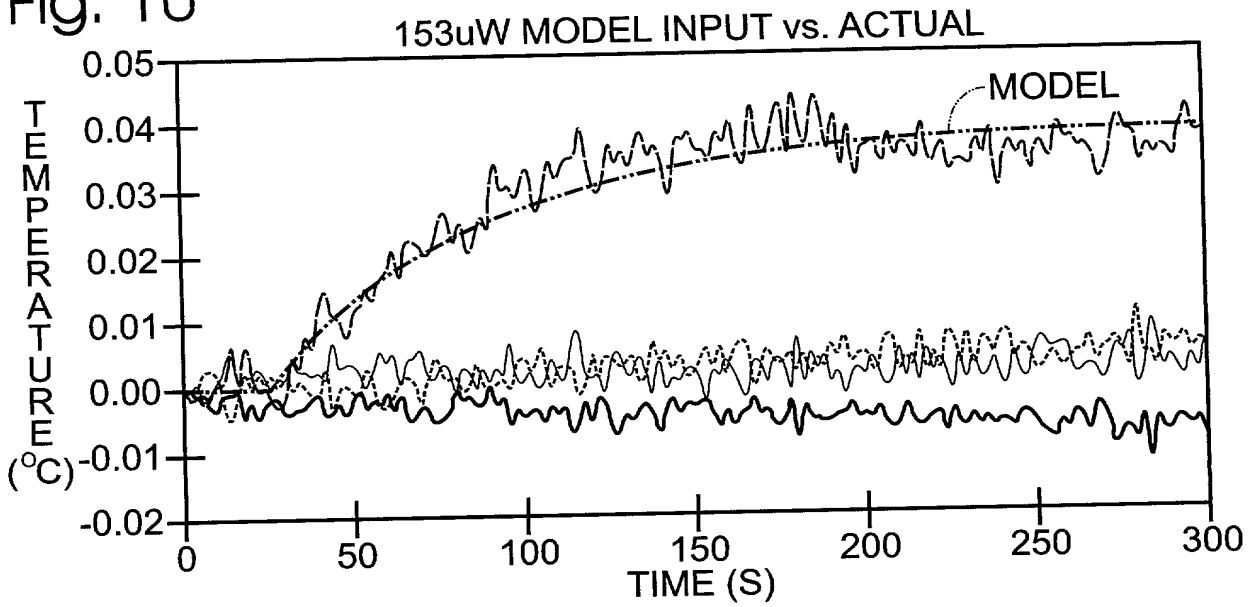

153uW MODEL INPUT vs. ACTUAL
MODEL
TEMPERATURE (°C)
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
0
50
100
150
200
250
300
TIME (S)

Fig. 11

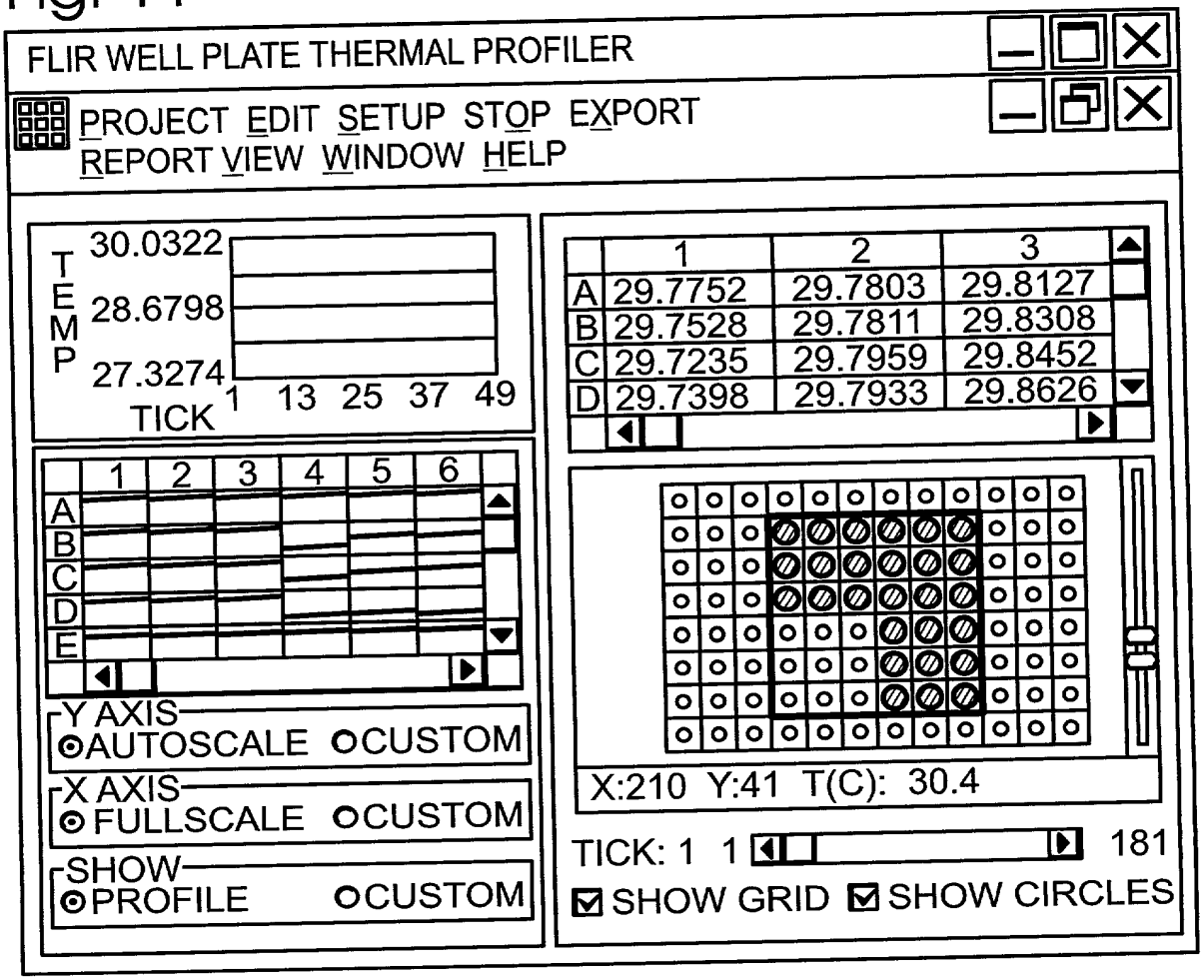

FLIR WELL PLATE THERMAL PROFILER
PROJECT EDIT SETUP STOP EXPORT
REPORT VIEW WINDOW HELP
TEMP
30.0322
28.6798
27.3274
TICK 1 13 25 37 49
1 2 3
A 29.7752 29.7803 29.8127
B 29.7528 29.7811 29.8308
C 29.7235 29.7959 29.8452
D 29.7398 29.7933 29.8626
1 2 3 4 5 6
A
B
C
D
E
Y AXIS
AUTOSCALE CUSTOM
X AXIS
FULLSCALE CUSTOM
SHOW
PROFILE CUSTOM
X:210 Y:41 T(C): 30.4
TICK: 1 1 181
SHOW GRID SHOW CIRCLES

Fig. 12

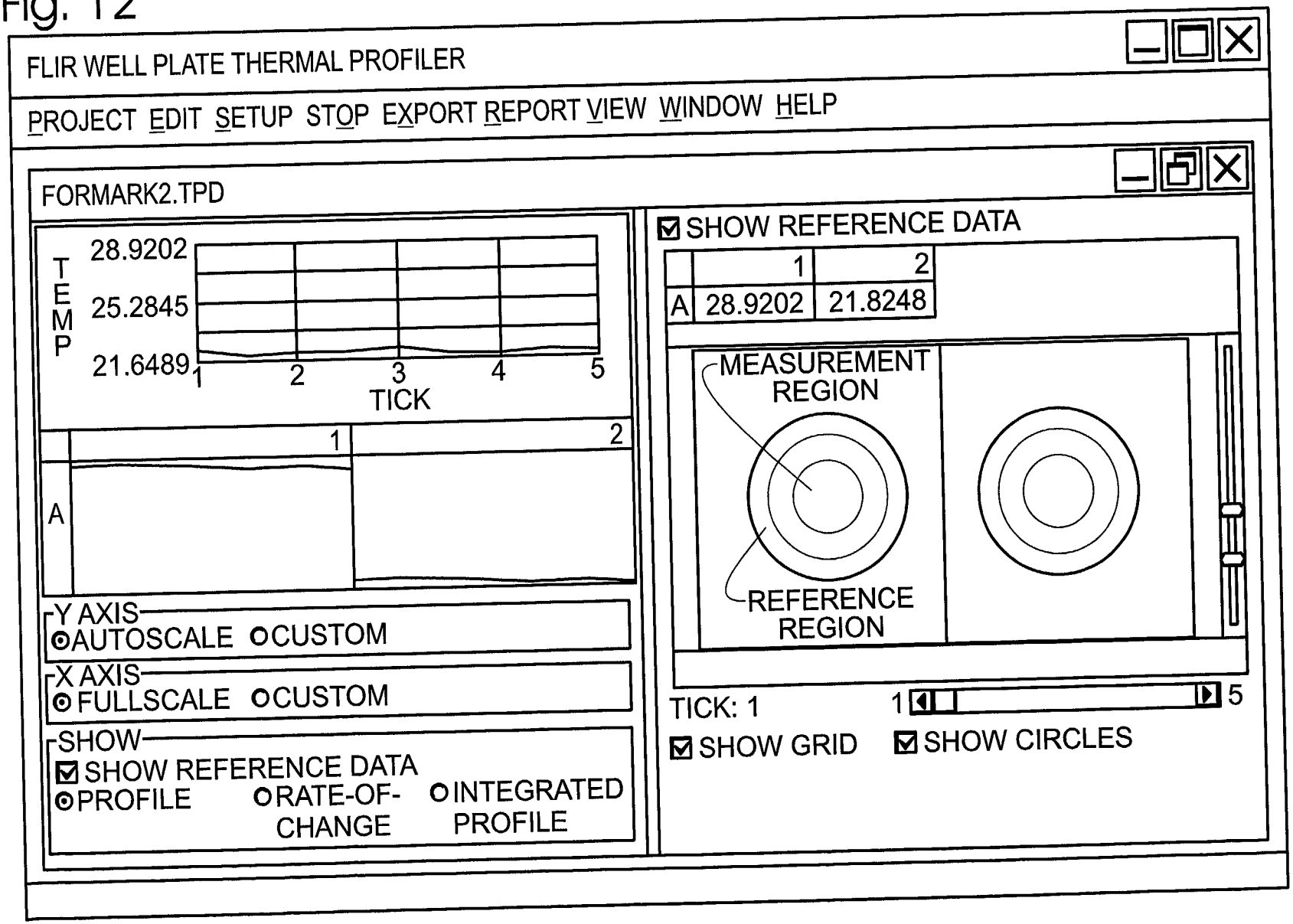
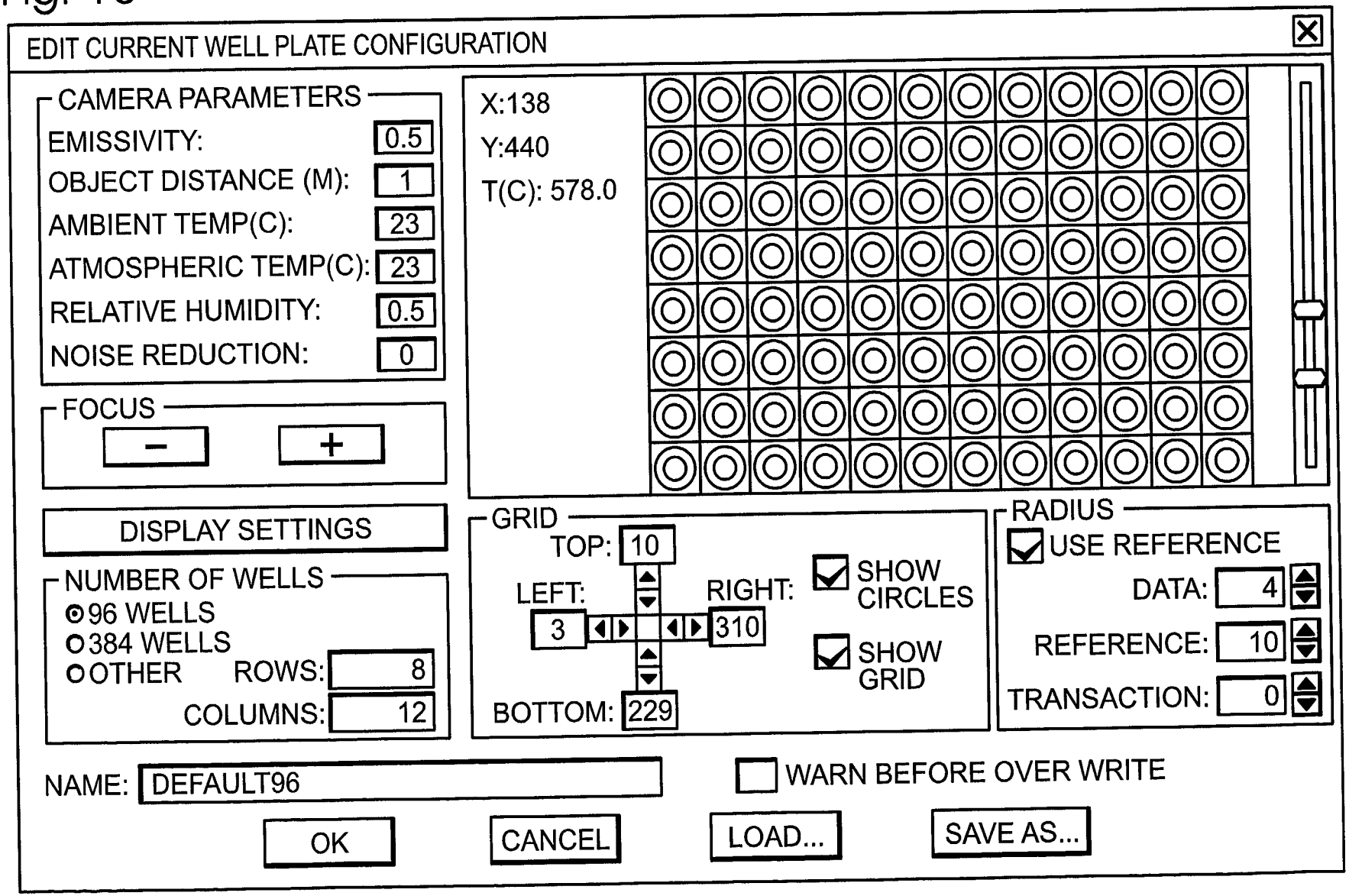

FLIR WELL PLATE THERMAL PROFILER
PROJECT EDIT SETUP STOP EXPORT REPORT VIEW WINDOW HELP
FORMARK2.TPD
TEMP
28.9202
25.2845
21.6489
1
2
3
4
5
TICK
1
2
A
Y AXIS
AUTOSCALE
CUSTOM
X AXIS
FULLSCALE
CUSTOM
SHOW
SHOW REFERENCE DATA
PROFILE
RATE-OF-CHANGE
INTEGRATED PROFILE
SHOW REFERENCE DATA
1
2
A
28.9202
21.8248
MEASUREMENT REGION
REFERENCE REGION
TICK: 1
1
5
SHOW GRID
SHOW CIRCLES

Fig. 13


EDIT CURRENT WELL PLATE CONFIGURATION
CAMERA PARAMETERS
EMISSIVITY: 0.5
OBJECT DISTANCE (M): 1
AMBIENT TEMP(C): 23
ATMOSPHERIC TEMP(C): 23
RELATIVE HUMIDITY: 0.5
NOISE REDUCTION: 0
FOCUS
-
+
X:138
Y:440
T(C): 578.0
DISPLAY SETTINGS
NUMBER OF WELLS
96 WELLS
384 WELLS
OTHER ROWS: 8
COLUMNS: 12
GRID
TOP: 10
LEFT: 3
RIGHT: 310
BOTTOM: 229
SHOW CIRCLES
SHOW GRID
RADIUS
USE REFERENCE
DATA: 4
REFERENCE: 10
TRANSACTION: 0
NAME: DEFAULT96
WARN BEFORE OVER WRITE
OK
CANCEL
LOAD...
SAVE AS...